

IN THE CLAIMS:

1 1. (Currently Amended) A process for the wet fractionation of oil seed press cake and/or  
2 meal, wherein comprising dispersing oil seed press cake or meal ~~is dispersed~~ in water and  
3 ~~subjected~~ subjecting it to a combined treatment of ~~[[wt]] wet~~ milling, ~~enzymes and heat,~~  
4 enzymatic treatment by using one or a combination of the following enzymes: beta-glucanase,  
5 xylanase, hemicellulase, arabinase and pectinase and heat, followed by a sequential  
6 fractionation at an elevated temperature using centrifugal forces and size exclusion  
7 (ultrafiltration) so as to yield one or more fibrous-rich fractions, at least three different protein-  
8 rich fractions, optionally an oil-rich fraction, a sugar-rich fraction and a phytate-rich fraction,  
9 followed by a final step consisting of drying or partial evaporation of the above-said fractions.

1 2. (Previously Presented) A process according to claim 1, wherein oil seed press cake or  
2 meal is the residual fibrous-protein fraction obtained from conventional oil extraction processes  
3 of oil seeds of the type Soya, rapeseed, cottonseed, sunflower, linseed and flax seed.

1 3. (Previously Presented) A process according to claim 1, wherein the combination of wet  
2 milling, enzymatic and heat treatment is carried out to achieve a high efficiency in the  
3 subsequent fractionation of the main components of oilseed press-cake and meal, i.e. fibre,  
4 protein, oil, sugars and phytate, and that an extraction rate of both protein, residual fat and  
5 phytate of at least 70% from the original material is achieved.

1 4. (Cancelled)

1 5. (Previously Presented) A process according to claim 1, wherein an enzyme inactivation step  
2 is carried out prior to the fractionation step or drying step.

1 6. (Previously Presented) A protein fraction obtained in accordance with the process of claim 1,  
2 wherein the said fraction is provided in a dry form with at least 88% dry matter, and it is  
3 comprised of one or more protein fractions produced in the said process, and it contains 30 to  
4 95% protein, and 1 to 60% oil.

1 7. (Currently Amended) A protein fraction obtained in accordance with the process of claim 1,  
2 wherein the said fraction is provided in a dry form with at least 88% dry matter, and it is  
3 comprised of one or more protein fractions produced in the said process, and it contains 30 to  
4 95% protein, 1 to 60% oil, and it contains active enzymes of the type used in the process.

1 8. (Withdrawn) An oil fraction obtained in accordance with the process of claim 1, wherein the  
2 said fraction is provided as an emulsified oil, and it is comprised of one or two oil fractions  
3 produced in the said process, and it contains at least 60% fat, and less than 30% protein.

1 9. (Withdrawn) An oil fraction obtained in accordance with the process of claim 1, wherein the  
2 said fraction is provided as an emulsified oil, and it is comprised of one or two oil fractions  
3 produced in the said process, and it contains at least 60% fat, and less than 30% protein, and it  
4 contains active enzymes of the type used in the process.

1 10. (Withdrawn) A fibre fraction obtained in accordance with the process of claim 1, wherein  
2 the said fraction provided in a dry form with at least 88% dry matter, and it is comprised of at  
3 least 50% fibre, 15% protein and 10% fat.

1 11. (Withdrawn) A fibre fraction obtained in accordance with the process of claim 1, wherein  
2 the said fraction provided in a dry form with at least 88% dry matter, and it is comprised of at

3 least 50% fibre, 15% protein and 10% fat, and it contains active enzymes of the type used in the  
4 process.

1 12. (Withdrawn) A sugar fraction obtained in accordance with the process of claim 1, wherein  
2 the said fraction provided in a syrup form with at least 75% dry matter, and it consists of at least  
3 50% neutral and acidic sugars.

1 13. (Withdrawn) A sugar fraction obtained in accordance with the process of claim 1, wherein  
2 the said fraction provided in a syrup form with at least 75% dry matter, and it consists of at least  
3 50% neutral and acidic sugars, and it contains active enzymes of the type used in the process.

1 14. (Withdrawn) A phytate fraction obtained in accordance with the process of claim 1, wherein  
2 the said fraction provided in a dry form and contains 30 to 80% phytate.

1 15. (Withdrawn) The use of a protein fraction, as described in claim 6, in food or feed  
2 applications as a protein ingredient or functional protein to replace other protein products from  
3 vegetable, animal and microbial sources.

1 16. (Withdrawn) The use of a protein fraction, as described in claim 7, in feed applications as a  
2 protein ingredient to replace other protein products from vegetable, animal and microbial  
3 sources, with active enzymes used in the process for enhanced nutritive value.

1 17. (Withdrawn) The use of an oil fraction, as described in claim 8, in food or feed applications  
2 as a fat substitute or emulsifier to replace other fat products from vegetable and animal sources.

1 18. (Withdrawn) The use of an oil fraction, as described in claim 9, in feed applications as a fat  
2 substitute or emulsifier to replace other fat products from vegetable and animal sources, with  
3 active enzymes used in the process for enhanced nutritive value.

1 19. (Withdrawn) The use of a fibre fraction, as described in claim 10, in feed applications as a  
2 balanced feed ingredient.

1 20. (Withdrawn) The use of a fibre fraction, as described in claim 11, in feed applications as a  
2 balanced feed ingredient, with active enzymes used in the process for enhanced nutritive value.

1 21. (Withdrawn) The use of a syrup fraction, as described in claim 12, in feed applications as  
2 an energy source or a compound feed binder, or as a media for microbial fermentation.

1 22. (Withdrawn) The use of a syrup fraction, as described in claim 13, in feed applications as  
2 an energy source or compound feed binder, with active enzymes used in the process for  
3 enhanced nutritive value.

1 23. (Withdrawn) The use of a phytate fraction, as described in claim 14, in food and feed  
2 applications as an anti-oxidant and taste enrichment agent and in nutraceutical / cosmoceutical /  
3 pharmaceutical applications as a cancer-preventing, urinary calculi-preventing and bacterial  
4 tooth plaque-preventing agent.

1 24. (Withdrawn) The use of a phytate fraction, as described in claim 14, in nutraceutical /  
2 cosmoceutical / pharmaceutical applications as a cancer-preventing.

1 25. (Withdrawn) The use of a phytate fraction, as described in claim 14, in nutraceutical /  
2 cosmoceutical/ pharmaceutical applications as a urinary calculi-preventing agent.

1 26. (Withdrawn) The use of a phytate fraction, as described in claim 14, in nutraceutical /  
2 cosmoceutical / pharmaceutical applications as a bacterial tooth plaque-preventing agent.

1 27. (Withdrawn) A set up for carrying out the process according to claim 1, wherein it  
2 comprises a hydrolysis and heat treatment vessel, a wet mill, a heat exchanger for enzymatic  
3 inactivation, mixing tanks, decanters, dseparators an ultra-filter, and evaporator, and dryers.

1 28. (New) A process according to claim 1, wherein the enzymatic treatment is combined with  
2 wet milling at temperatures from 20 to 90 °C, more preferably from 30 to 50 °C.

1 29. (New) A process according to claim 1, wherein the hydrolysate after the wet milling is  
2 heated to 50 to 95 °C and sequentially centrifuged and filtered through an ultrafilter fitted with  
3 a 10 kD membrane.